

WE CLAIM:

1. A method for removing gas bubbles from a workpiece surface which is placed in a process solution for an electrochemical process, the method comprising:
  - placing a barrier surface having one or more openings into the process solution;
  - flowing the process solution through the one or more openings of the barrier surface;
  - immersing the workpiece surface into the process solution; and
  - moving the workpiece surface towards the barrier surface to induce a process solution flow between the workpiece surface and the barrier surface to remove gas bubbles from the workpiece surface.
2. The method of Claim 1 further comprising placing the workpiece surface in proximity of the barrier surface subsequent to the step of moving.
3. The method of Claim 2, wherein the distance between the workpiece surface and the barrier surface is 0.5 to 20 millimeters.
4. The method of Claim 1 further comprising touching the barrier surface with the workpiece surface subsequent to the step of moving.
5. The method of Claim 1, wherein the barrier surface is adapted to have channels to direct and increase the velocity of the flow of process solution between the workpiece surface and the barrier surface.
6. The method of Claim 1, wherein the electrochemical process is an electrochemical deposition of a conductive material onto the surface of the workpiece.

7. The method of Claim 1, wherein the electrochemical process is electrochemical removal of a conductive material from the surface of the workpiece.
8. The method of Claim 1, further comprising rotating the workpiece surface during the step of immersing;
9. The method of Claim 1, further comprising laterally moving the workpiece surface in proximity of the barrier surface.
10. The method of Claim 1, further comprising initiating the electrochemical process during the step of immersing.
11. The method of Claim 1, wherein the step of moving occurs during the electrochemical processing.
12. The method of Claim 1, wherein the step of moving occurs before the electrochemical processing is initiated.
13. The method of Claim 1, wherein during the step of moving, the flow of process solution has a velocity of 1 to 5 meters per second.
14. The method of Claim 1, wherein during the step of moving the workpiece surface is moved towards the barrier surface with a velocity of 10 to 50 millimeters per second.

15. The method of Claim 1, wherein the workpiece surface and the barrier surface are substantially parallel to one another.

16. A system for removing gas bubbles from a surface of a workpiece which is placed in a process solution for an electrochemical process, comprising:

a workpiece carrier to hold the workpiece;

a pressure barrier having one or more openings immersed into the process solution, the one or more openings allowing a process solution flow through the pressure barrier, wherein when the surface of the workpiece is immersed into the process solution and moved towards the barrier surface, the pressure barrier increases the velocity of the process solution flow between the surface of the workpiece and the pressure barrier and thereby sweeps the bubbles away with the process solution.

17. The system of Claim 16, wherein the pressure barrier is a porous layer.

18. The system of Claim 16, wherein the pressure barrier is a filter material having porosities.

19. The system of Claim 16, wherein the pressure barrier has channels facing the surface of the workpiece to direct the process solution flow on the pressure barrier.

20. The system of Claim 19, wherein the process solution flow is directed laterally and parallel to the surface of the workpiece.

21. The system of Claim 16, wherein the pressure barrier is a flow enhancing plate having channels to direct the process solution flow on the pressure barrier.

22. The system of Claim 21, wherein the pressure barrier is a flow enhancing plate having channels to direct the process solution flow on the pressure barrier and a filter material placed under the flow enhancing plate.
23. The system of Claim 21, wherein the center of the pressure barrier is placed below the center of the surface of the workpiece.
24. The system of Claim 22, wherein the center of the pressure barrier is placed below the center of the surface of the workpiece.
25. The system of Claim 21, further comprising a pad layer attached on the barrier surface to sweep the surface of the workpiece during the electrochemical process.
26. The system of Claim 16, wherein the workpiece is a semiconductor wafer.